

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	§	Group Art Unit: 2153
	§	
Gregory L. Slaughter, et al.	§	Examiner: Lesniewski, Victor D.
	§	
	§	Atty. Dkt. No.: 5181-64900
	§	P4980
Serial No.: 09/660,563	§	
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	§	
Filed: September, 12, 2000	§	
	§	
For: MECHANISM AND APPARATUS	§	
FOR ACCESSING AND	§	
ADDRESSING SERVICES IN A	§	
DISTRIBUTED COMPUTING	§	
ENVIRONMENT	§	
	§	

APPEAL BRIEF

Mail Stop Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

Further to the Notice of Appeal filed January 8, 2007, Appellants present this Appeal Brief. Appellants respectfully request that the Board of Patent Appeals and Interferences consider this appeal.

I. REAL PARTY IN INTEREST

As evidenced by the assignment recorded at Reel/Frame 011099/0750, the subject application is owned by Sun Microsystems, Inc., a corporation organized and existing under and by virtue of the laws of the State of Delaware, and now having its principal place of business at 4150 Network Circle, Santa Clara, CA 95054.

II. RELATED APPEALS AND INTERFERENCES

No other appeals, interferences or judicial proceedings are known which would be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-30 are pending and rejected. The rejection of claims 1-30 is being appealed. A copy of claims 1-30 is included in the Claims Appendix hereto.

IV. STATUS OF AMENDMENTS

No amendments have been submitted subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Typically, traditional networks are complex to set up, expand and manage. Also, certain intelligent devices may not support the necessary interfaces to communicate on a given network. The art has sought for a simple way to connect various types of intelligent devices to allow for communication and sharing of resources while avoiding the interoperability and complex configuration problems existing in conventional networks. Various technologies exist for improving the addition of devices to a network. For example, many modern I/O buses, such as the Universal Serial Bus, 1394 and PCI, support plug and play or dynamic discovery protocols to simplify the addition of a new device on the bus. However, these solutions are limited to specific peripheral buses and are not suitable for general networks.

Independent claim 1 is directed to a method for a client to communicate with a service in a distributed computing environment. A client may read an advertisement from a space that includes a network-addressable storage location. A distributed computing environment may rely upon “spaces” or object repositories to store advertisements from services. *See, e.g.*, p. 14, line 3 – p. 15, line 6; and p. 29, lines 8-24. Service providers may advertise services in such a space. Clients may locate the advertisements in a space and use the information provided in the service advertisement to access the services. For example, a client may utilize a discovery service to locate a space and/or advertisements on a space. *See, e.g.*, p. 29, line 26 – p. 30, line 11. A service advertisement may include a Uniform Resource Identifier (URI) that specifies a network address at which a service may be accessed. *See, e.g.*, p. 15, line 8 – p. 16, line 10.

An advertisement may also include a schema that specifies messages usable to invoke one or more functions of the service. For example, a service advertisement may include an XML schema specifying a set of message that clients of the service may send to the service to invoke functionality provided by the service. Thus, a schema may define a client-service interface. Together, the URI and schema in an advertisement may

indicate how to address and access the service. *See, e.g.*, p. 18, lines 1-21; p. 32, lines 9-18; and p. 34, lines 4-18. After reading the advertisement from the space, the client may access the service by sending a message specified in the schema to the URI from the advertisement. *See also*, FIGs. 6, 8, 9, 11b, 15, 18, 22, 31, 32B, 38, 44a-g, 45, 48; p. 15, lines 8-24; p. 29, lines 8-24; p. 31, line 19 – p. 32, line 7; p. 36, lines 1-13; and p. 38, line 20-27.

Independent claim 11 is directed to a system including a client and a service. The client locates an advertisement for the service in space and uses information from the space to access the service similarly as described above regarding claim 1. Please see the discussion above regarding claim 1 for a more detailed description of examples of how a client may locate a service advertisement and uses information from the advertisement to access the service. *See, e.g.*, FIGs. 6 – 9, 10a – b, 11b, 15, 18, 25, 32A-B; p. 31, line 6 – p. 32, line 7; and p. 32, lines 9 – 29.

Independent claim 21 is directed to a medium including program instructions that are computer-executable (*see, e.g.*, p. 167, line 32 – p. 168, line 5) to implement a client reading an advertisement from a space, where the space comprises a network-addressable storage location. For instance, a distributed computing environment may rely upon “spaces” or object repositories to store advertisements from services. *See, e.g.*, p. 14, line 3 – p. 15, line 6; and p. 29, lines 8-24. Service providers may advertise services in such a space. Client may locate the advertisements in a space and use the information provided in the service advertisement to access the services. For example, a client may utilize a discovery service to locate a space and/or advertisements on a space. *See, e.g.*, p. 29, line 26 – p. 30, line 11. A service advertisement may include a Uniform Resource Identifier (URI) that specifies a network address at which a service may be accessed. *See, e.g.*, p. 15, line 8 – p. 16, line 10.

An advertisement may also include a schema that specifies messages usable to invoke one or more functions of the service. For example, a service advertisement may include an XML schema specifying a set of message that clients of the service may send

to the service to invoke functionality provided by the service. Thus, a schema may define a client-service interface. Together, the URI and schema in an advertisement may indicate how to address and access the service. *See, e.g.*, p. 18, lines 1-21; p. 32, lines 9-18; and p. 34, lines 4-18. After reading the advertisement from the space, the client may access the service by sending a message specified in the schema to the URI from the advertisement. *See also*, FIGs. 6, 8, 9, 11b, 15, 18, 22, 31, 32B, 38, 44a-g, 45, 48; p. 15, lines 8-24; p. 29, lines 8-24; p. 31, line 19 – p. 32, line 7; p. 36, lines 1-13; and p. 38, line 20-27.

The summary above describes various examples and embodiments of the claimed subject matter; however, the claims are not necessarily limited to any of these examples and embodiments. The claims should be interpreted based on the wording of the respective claims.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-5, 7-15, 17-25 and 27-30 are rejected under 35 U.S.C. § 102(e) as being anticipated by Beck et al. (U.S. Patent No. 6604140).
2. Claims 6, 16 and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Beck in view of Official Notice.

VII. ARGUMENT

First Ground of Rejection:

Claims 1-5, 7-15, 17-25 and 27-30 are rejected under 35 U.S.C. § 102(e) as being anticipated by Beck et al. (U.S. Patent No. 6604140). Appellants traverse this rejection for at least the following reasons. Different groups of claims are addressed under their respective subheadings.

Claims 1-3, 7-9, 11-13, 17 - 19, 21-23 and 27-29:

Regarding claim 1, Beck fails to disclose a method comprising a client reading an advertisement from a space, where the space comprises a network-addressable storage location, wherein the advertisement comprises a Uniform Resource Identifier (URI) and a schema, wherein the URI specifies a network address at which a service may be accessed, and wherein the schema specifies one or more messages usable to invoke one or more functions of the service. What Beck actually teaches is a service framework that enables devices to discover and use services over a network. Beck's service discovery is based on periodic multicasting of service descriptors. Beck teaches that an advertiser retrieves a service to advertise, creates a service descriptor and periodically broadcasts the descriptor (Beck, column 3, lines 59-64 and column 4, lines 40-50).

The Examiner cites, both in the rejection of claim 1 and in his Response to Arguments, column 6, lines 1-16 where Beck describes how a client requests usage of a service by querying a service registry. **However, Beck does not, either at the cited passage or elsewhere, mention a client reading an advertisement from a space, as recited in claim 1.** Instead, Beck teaches at the cited passage that a client furnishes a description of the requested service and that the registry matches this request against service descriptors of known services. If a service descriptor in the registry matches the description of the requested service, the registry verifies that the service is already loaded, and if not, loads the service. Beck does not teach that registry returns to the client

(or that the client downloads) the service descriptor, which the Examiner contends is an advertisement. The client in Beck clearly does not read this service descriptor from the registry. Instead, Beck teaches, “[t]he process of binding a service *terminates* in step 507 where a *reference to the service adaptor is returned* to the client” (emphasis added, Beck, column 6, lines 22-24). Elsewhere, Beck teaches that a service adaptor “provides an additional level of indirection between clients and the service” and that the service adaptor is a Java class (Beck, column 5, lines 55-61).

In the Response to Arguments, the Examiner also asserts that Beck’s teachings regarding a service user receiving service descriptors multicast over the ad-hoc network by other device, without citing any particular portion of Beck. **However, Beck teaches that it is the service user, not a client, that listens for and receives broadcast service descriptors and that the service user saves service descriptors in the registry which functions as described above to locate services for requesting clients.** Furthermore, a service user receiving service descriptors that are *broadcast* over the network cannot be considered a *client reading an advertisement from a space*. Receiving a descriptor via a network broadcast is not at all the same as a client reading an advertisement from a space comprising a network-addressable storage location.

The Examiner also asserts that the above “discussion of the service adaptor ... is irrelevant as it can be seen that Beck’s client reads an advertisement from a space before downloading of the service interface, adaptor, and implementation.” In the Response to Arguments, the Examiner maintains his contention that Beck’s teachings regarding a client supplying a description of a requested service and receiving a reference to a service adapter “meets the limitation of ‘a client reading an advertisement from a space.’” However, as noted above, the Examiner’s interpretation of Beck is simply incorrect. Beck does not teach that a client reads an advertisement from a space before receiving a service adaptor, as the Examiner incorrectly asserts. Instead, as discussed above, Beck’s client supplies a service description of a requested service and that the registry finds a matching service to load (if not already loaded). The client is then returned a reference to the service adaptor. Nowhere does Beck’s client read an advertisement from a space

comprising a network-addressable storage location. A client supplying a description of a requested service and, in return, receiving a reference to a service adaptor, does not disclose a client reading an advertisement from a space comprising a network-addressable storage location, as recited in Applicants' claim. Instead, the client in Beck queries a service registry to obtain a reference to a service adaptor, which cannot be considered an advertisement as defined in claim 1.

Further in regard to claim 1, Beck fails to disclose that the advertisement comprises a Uniform Resource Identifier (URI) and a schema, where the URI specifies a network address at which a service may be accessed, and where the schema specifies one or more messages usable to invoke one or more functions of the service. The Examiner cites column 4, lines 40-60 of Beck. However, the cited passage does not describe an advertisement that includes a schema that specifies messages usable to invoke functions of a service. Beck teaches that a "service descriptor contains information about the service, including the service name and a description of its function." Beck also states that an "enhanced service descriptor is a service descriptor that also contains the location of the code implementing the service." (Beck, column 4, lines 45-50). First of all, as discussed above, the service descriptor in Beck is not read by a client from a space comprising a network-addressable storage location. Moreover, Beck does not describe its service descriptor as including *a schema specifying messages usable to invoke functions of the service*. Instead, Beck teaches that a client uses a Java interface for a service to call the methods that the service provides (Beck, column 5, lines 42-46 and column 6, lines 29-36). Beck specifically teaches that a client calls a method provided by the service's interface. Thus, not only does Beck fail to disclose an advertisement that includes a schema specifying messages usable to invoke functions of the service, Beck describes a separate Java interface for the service that a "defines the set of operations that the service can perform on behalf of a client" (Beck, column 5, lines 42-43). The service descriptor, which the Examiner equates to the advertisement of Applicants' claim, clearly does not include a schema specifying messages usable to invoke functions of a service. Moreover, as noted above, Beck's service descriptor

cannot be equated to the advertisement of claim 1 because it is not read by a client from a space comprising a network-addressable storage location, as is explicitly stated in Beck.

In the Response to Arguments, the Examiner again cites column 4, lines 40-60 of Beck and asserts that Beck's "service descriptor clearly includes code to allow data transfer between the client and service which effectuates download of service functionalities and thus is 'usable to invoke one or more functions of the service'". Thus, the Examiner's argument appears to be Beck's invoking of service functions somehow discloses the specific limitation of claim 1. The Examiner is ignoring the specific requirements of Applicants' claim. As noted above, Beck teaches the use of a Java Interface that "defines the set of operations that the service can perform". Also as noted above, Beck's Java Interface is clearly separate code and not part of the service descriptor, which the Examiner equates to the advertisement of Applicants' claim. Thus, Beck fails to disclose an advertisement that includes a schema specifying messages usable to invoke functions of the service.

The Examiner also contends that since Beck's service descriptor "leads to the downloading of [the Java] interface, the service descriptor contains code for data transport that is 'usable to invoke one or more functions of the service'". First, the Examiner's statement is not supported by the reference. Nowhere does Beck state that the service descriptor "contains code for data transport that is usable to invoke one or more functions of the service." There is no description in Beck of the service descriptor including a message schema. The Examiner's argument appears to be that since Beck's service descriptor is somehow associated with the service interface, that the service descriptor must also include a schema specifying messages usable to invoke functions of the service. However, a client in Beck's system does not download the service descriptor. Instead, as noted above, the client supplies the service descriptor in order to locate a matching service. Thus, the Examiner's comments regarding Beck's service descriptor have no bearing on Beck's failure to disclose a client reading an advertisement from a space, where the advertisement comprises a schema that specifies one or more messages usable to invoke one or more functions of the service. Additionally, as

discussed above, Beck teaches that a “service descriptor contains information about the service, including the service name and a description of its function.” Beck also states that an “enhanced service descriptor is a service descriptor that also contains the location of the code implementing the service.” Beck does not state that the service descriptor includes a message schema. **Beck clearly fails to mention anything about the service descriptor including a schema specifying messages, and the Examiner’s contention that since service descriptor “leads to the downloading” of a Java interface for the service, the service descriptor “contains code for data transfer” is clearly incorrect and unsupported by the true teachings of the reference.**

Anticipation requires the presence in a single prior art reference disclosure of each and every limitation of the claimed invention, arranged as in the claim. M.P.E.P 2131; *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). The **identical** invention must be shown in as complete detail as is contained in the claims. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). As discussed above, Beck clearly fails to disclose a client reading an advertisement from a space, wherein the space comprises a network-addressable storage location, wherein the advertisement comprises a Uniform Resource Identifier (URI) and a schema, wherein the URI specifies a network address at which a service may be accessed, and wherein the schema specifies one or more messages usable to invoke one or more functions of the service. Therefore, Beck cannot possibly be said to anticipate claim 1. The rejection of claim 1 is not supported by the cited art, and removal thereof is respectfully requested.

Claims 4, 14, and 24:

Regarding claim 4, Beck fails to disclose that the schema is expressed in a data representation language. The Examiner cites column 5, lines 46-50. However, the cited portion of Beck teaches that a service interface 402 defines the set of operations that the service can perform on behalf of a client and that the service interface is a Java interface. As is well known in the art, a Java interface is not a schema *expressed in a*

data representation language. Nowhere does Beck mention any schema expressed in a data representation language and clearly fails to disclose a schema expressed in a data representation language that is included in an advertisement. Without some teaching of Beck regarding a schema expressed in a data representation language, Beck cannot be said to anticipate claim 4.

The Examiner, in the Response to Arguments, contends that Applicant, “has failed to provide any basis for [the] conjecture” that a Java Interface is not a schema expressed in a data representation language. **However, it is the Examiner who shoulders the burden of proof, not the Applicants.** The Examiner also asserts that a “data representation language is not further defined or explained in the claims so as to be distinguished over the Java programming language” and that “Java abstracts the data on bytecodes so what when applications are developed the same code may run in different environments.” However, the Examiner’s statements actually support Applicants’ arguments. Java utilized bytecodes, which, by definition, cannot in any way be considered a data representation language. As described in Applicants’ specification, and as is well understood by anyone of ordinary skill in the art, a data representation language (such as XML) is a particular type of language used to describe or represent data or content. No one of ordinary skill in the art would consider Java to be a data representation language.

In response to the Examiner’s argument that Applicant has not provided any basis for the fact that a Java interface is not a schema expressed in a data representation language, Applicant submits that it is the Examiner’s burden to “make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill” (emphasis added). As described in the M.P.E.P. at 2131.01 (III), “[t]o serve as an anticipation when the reference is silent about the asserted inherence characteristic, such gap in the reference may be filled with recourse to extrinsic evidence.” In the present rejection, the Examiner merely cites column 5, lines 46-50 that does not include any mention of a schema expressed in a data representation language. Instead, the cited passage merely describes a

Java Interface. The Examiner has not provided any extrinsic evidence that Beck's Java Interface *necessarily* includes a schema expressed in a data representation language. Instead, the Examiner merely makes conclusory statements regarding the Java programming language, class, JAR files and bytecodes (which clearly cannot be considered either a schema nor expressed in a data representation language). Furthermore, **as is well known in the art**, JAVA interfaces do not include schemas expressed in a data representation language.

Thus, the rejection of claim 4 is not supported by the cited art and removal thereof is respectfully requested.

Claims 5, 15 and 25:

Regarding claim 5, Beck fails to disclose where the first message is expressed in a data representation language. The Examiner cites column 5, lines 54-61 and column 6, lines 30-39. The cited portions of Beck describe that once a client has bound a service it can use that service by calling a method provided by the service's interface and that the service interface forwards the call to the service implementation that performs the requested service. Beck also teaches that the service interface and the service implementation are Java-based and that the RMI, OSF-RPC and IIOP inter-process communication protocols are used. Beck does not mention anything about a message expressed in a data representation language (such as XML) and clearly fails to disclose wherein a message sent by a client to the service is expressed in a data representation language. The Examiner is clearly speculating (which is improper) regarding the details of Beck's messages. As Beck makes no mention of any message expressed in a data representation language, Beck does not anticipate claim 5.

In the Response to Arguments, the Examiner argues that Beck's Java Interface discloses messages expressed in a data representation language. However, as discussed above regarding claim 4, the Examiner's interpretation of Beck is incorrect. Please refer

to the remarks above regarding claim 4 regarding the fact that a Java interface does not include or disclose anything expressed in a data representation language.

The rejection of claim 5 is not supported by the cited art and removal thereof is respectfully requested. Similar remarks also apply to claims 15 and 25.

Claims 10, 20 and 30:

Regarding claim 10, Beck fails to disclose the client using the URI and the schema in the advertisement to construct a gate for access to the service. The Examiner cites column 7, lines 34 – 44 of Beck. However, this passage of Beck does not describe a client using the URI and the schema in the advertisement to construct a gate for access to the service. First of all, as noted above regarding the rejection of claim 1, Beck fails to disclose a client reading an advertisement that comprises a schema that specifies messages usable to invoke functions of the service. Secondly, nowhere does Beck describe the client using a schema from an advertisement to construct a gate for access to the service. Instead, Beck teaches that the service registry downloads the service interface, adapter and implementation and returns a reference to the client and that the client calls methods provided in the service's interface that forwards the call to the service adapter (Beck, column 6, lines 3-24 and lines 29-44). The client doesn't have to construct anything in Beck, and Beck certainly fails to describe a client using the URI *and the schema* in the advertisement to construct a gate for access to the service.

In the Response to Arguments, the Examiner again cites column 7, lines 34 – 44 where Beck describes a service implementation that split into an implementation proxy and a remote service implementation. As noted above, the cited passage makes no mention of a client using the URI *and the schema in the advertisement* to construct a gate for access to the service. The Examiner is improperly ignoring the specific limitations of claim 10. Specifically, the Examiner is ignoring the fact that claim 10 recites, in part, a “client using the URI and the schema in the advertisement to construct a gate for access to the service” (emphasis added). The Examiner has not cited any portion of Beck, nor

provided any other evidence or interpretation in support for the contention that Beck's client uses a schema *in the advertisement* to construct a gate to access the service. The Examiner argues that by downloading a service interface, Beck client is somehow using a URI and a schema from an advertisement to construct a gate for access to the service. However, as noted above, Beck's service interface cannot be considered "a schema" and is clearly not included in the service descriptor, which the Examiner equates to the Advertisement of Applicants' claims."

Therefore, the rejection of claim 10 is not supported by the cited art and removal thereof is respectfully requested. Similar remarks apply to claims 20 and 30.

Second Ground of Rejection:

Claims 6, 16, and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Beck in view of Official Notice. Appellants traverse this rejection for at least the following reasons.

The Examiner has failed to provide a proper motivation for combining the teachings of Beck with XML (based on Office Notice) to result in the specific limitations recited in claims 6, 16 and 26. The Examiner merely states, "[s]ince the combination of Beck and Official Notice discloses all of the above limitations, claims 6, 16, and 26 are rejected." However, obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion or incentive to do so. *In re Bond*, 910 F. 2d 81, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). In addition, the showing of a suggestion, teaching, or motivation to combine prior teachings "must be clear and particular Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence'." *In re Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999). The art must fairly teach or suggest to one to make the specific combination as claimed. That one achieves an improved result by making such a combination is no more than hindsight without an initial suggestion to make the combination.

In the Response to Arguments, the Examiner merely repeats the previous citations and asserts, “it is maintained that the stated motivation in the above rejection is sufficient” without actually rebutting any of Applicants’ arguments above. The Examiner’s statement that the combination of Beck and Official Notice “satisfies the need for a more efficient approach to service discovery that uses more efficient methods of describing and loading services” does not provide any motivation to modify Beck and is not supported by any evidence of record. Beck’s entire invention is directed toward service discovery. Thus, one seeking an approach to service discovery would simply use Beck’s invention, not modify it, as the Examiner contends.

Furthermore, Beck describes a specific Java interface for the service that a “defines the set of operations that the service can perform on behalf of a client” (Beck, column 5, lines 42-43). To modify Beck to use XML messages would be counter to the intended operation of Beck to employ a specific Java interface. If a proposed modification would render the prior art feature unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984). Accordingly, it would be improper to modify Beck’s teachings to employ XML messages.

The Examiner, in the Response to Arguments, asserts, “Beck specifically offers language independence in his system to allow the data transfer and other possible service implementations to be written in any programming language.” **However, the fact that Beck teaches that service implementation may be written in any programming language actually supports Applicants’ argument.** As is well understood in the art, XML is a data representation language, not a programming language. Furthermore, modifying the programming language in which Beck’s service implementation is developed does not provide any motivation to express a message specified in a schema in a data representation language that includes XML, as required by the specific limitations in Applicants’ claim.

The rejection of claims 6, 16 and 26 is not supported by the prior art and removal thereof is respectfully requested.

CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 1-30 was erroneous, and reversal of his decision is respectfully requested.

The Commissioner is authorized to charge the appeal brief fee of \$500.00 and any other fees that may be due to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-64900/RCK. This Appeal Brief is submitted with a return receipt postcard.

Respectfully submitted,

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Date: March 8, 2007

VIII. CLAIMS APPENDIX

The claims on appeal are as follows.

1. A method comprising:

a client reading an advertisement from a space, wherein the space comprises a network-addressable storage location, wherein the advertisement comprises a Uniform Resource Identifier (URI) and a schema, wherein the URI specifies a network address at which a service may be accessed, and wherein the schema specifies one or more messages usable to invoke one or more functions of the service; and

the client sending a first message to the service at the URI, wherein the first message is specified in the schema.

2. The method of claim 1, further comprising:

the service sending a second message to the client in response to the client sending the first message to the service, wherein the second message is specified in the schema.

3. The method of claim 1, further comprising:

invoking one or more functions of the service in response to the client sending the first message to the service.

4. The method of claim 1,

wherein the schema is expressed in a data representation language.

5. The method of claim 1,

wherein the first message is expressed in a data representation language.

6. The method of claim 5,

wherein the data representation language comprises eXtensible Markup Language (XML).

7. The method of claim 1,

wherein the URI comprises an Internet address.

8. The method of claim 1, further comprising:

the service publishing the advertisement in the space.

9. The method of claim 1, further comprising:

the client using a lookup service to find the advertisement in the space.

10. The method of claim 1, further comprising:

the client using the URI and the schema in the advertisement to construct a gate for access to the service.

11. A system comprising:

a client;

a service which is communicatively coupled to the client; and

a space which is communicatively coupled to the client, wherein the space comprises a network-addressable storage location, wherein the space stores an advertisement for the service, wherein the advertisement comprises a Uniform Resource Identifier (URI) and a schema, wherein the URI specifies a network address at which the service may be accessed, and wherein the schema specifies one or more messages usable to invoke one or more functions of the service;

wherein the client is operable to:

read the advertisement from a space; and

send a first message to the service at the URI, wherein the first message is specified in the schema.

12. The system of claim 11,

wherein the service is operable to send a second message to the client in response to the first message, wherein the second message is specified in the schema.

13. The system of claim 11,

wherein one or more functions of the service are invoked in response to the first message.

14. The system of claim 11,

wherein the schema is expressed in a data representation language.

15. The system of claim 11,

wherein the first message is expressed in a data representation language.
16. The system of claim 15,

wherein the data representation language comprises eXtensible Markup Language (XML).
17. The system of claim 11,

wherein the URI comprises an Internet address.
18. The system of claim 11,

wherein the service is operable to publish the advertisement in the space.
19. The system of claim 11,

wherein the client is operable to use a lookup service to find the advertisement in the space.
20. The system of claim 11,

wherein the client is operable to use the URI and the schema in the advertisement to construct a gate for access to the service.
21. A computer-readable storage medium comprising program instructions,
wherein the program instructions are computer-executable to implement:

a client reading an advertisement from a space, wherein the space comprises a network-addressable storage location, wherein the advertisement comprises a Uniform Resource Identifier (URI) and a schema, wherein the URI specifies a network address at which a service may be accessed, and wherein the schema specifies one or more messages usable to invoke one or more functions of the service; and

the client sending a first message to the service at the URI, wherein the first message is specified in the schema.

22. The computer-readable storage medium of claim 21, wherein the program instructions are further computer-executable to implement:

the service sending a second message to the client in response to the client sending the first message to the service, wherein the second message is specified in the schema.

23. The computer-readable storage medium of claim 21, wherein the program instructions are further computer-executable to implement:

invoking one or more functions of the service in response to the client sending the first message to the service.

24. The computer-readable storage medium of claim 21,

wherein the schema is expressed in a data representation language.

25. The computer-readable storage medium of claim 21,

wherein the first message is expressed in a data representation language.

26. The computer-readable storage medium of claim 25,

wherein the data representation language comprises eXtensible Markup Language (XML).

27. The computer-readable storage medium of claim 21,

wherein the URI comprises an Internet address.

28. The computer-readable storage medium of claim 21, wherein the program instructions are further computer-executable to implement:

the service publishing the advertisement in the space.

29. The computer-readable storage medium of claim 21, wherein the program instructions are further computer-executable to implement:

the client using a lookup service to find the advertisement in the space.

30. The computer-readable storage medium of claim 21, wherein the program instructions are further computer-executable to implement:

the client using the URI and the schema in the advertisement to construct a gate for access to the service.

IX. EVIDENCE APPENDIX

No evidence submitted under 37 CFR §§ 1.130, 1.131 or 1.132 or otherwise entered by the Examiner is relied upon in this appeal.

X. RELATED PROCEEDINGS APPENDIX

There are no related proceedings.